

REMARKS

I. Introduction

In the Office Action, pending claims 1-16 have been examined and are rejected. Specifically claims 1-2, 4 and 6 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Swain, U.S. Patent No. 5,446,114 (hereinafter "Swain"); claims 3 and 7 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Swain, as applied to claims 1 and 4, and further in view of Van Breen, U.S. Patent No. 4,290,734 (hereinafter "Van Breen"); claims 5 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Swain, as applied to claims 1 and 4, and further in view of Rauh, U.S. Patent No. 4,953,805 (hereinafter "Rauh"); claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Swain and Van Breen, as applied to claim 7, and further in view of Schlitz, U.S. Patent No. 1,907,447 (hereinafter "Schlitz"); claims 11-14 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Read, U.S. Patent No. 4,557,515 (hereinafter "Read"), in view of Swain; claim 15 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Read and Swain, as applied to claim 11, and further in view of Van Breen; and claim 16 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Read and Swain, as applied to claim 11, and further in view of Van Breen and Sano et al., Japanese Patent Publication No. 07-034759 (hereinafter "Sano").

Applicants traverse the rejections of claims 1-16 as follows.

II. Claim Rejections -- 35 U.S.C. § 102(b)

Claims 1-2, 4 and 6 stand rejected under § 102(b) as allegedly being anticipated by Swain.

Claim 1

Swain is directed to a system for supporting hollow cylinders (Swain: Abstract). Swain describes that one or more hollow cylindrical substrates 88 can be slid onto the mandrel structure 10 automatically off of a loading mandrel 110 (Swain: col. 7, lines 38-41; and Figs. 1 and 3). Additionally, Swain describes that button 22 can be depressed and twisted automatically to lock or unlock the shaft 16 from a "load" position (Swain: col. 5, lines 27-29). For example, the loading mandrel 110 can be configured with a blade-like projection at the end of finger 112, the blade-like projection being adapted to mate with slot 114 at the free end of button 22 of mandrel 10 (Swain: col. 5, lines 29-35).

Applicants amend claim 1 to incorporate the subject matter of claim 2, and cancel claim 2 to avoid redundancy. As amended, claim 1 recites, *inter alia*, "a tip end of said roll retainer shaft is pressed by a tip end of said roll loading shaft to release said rolls from being held on said roll retainer shaft under pressing forces". The Examiner alleges that Swain discloses these features (*see* Office Action: page 2).

To the contrary, Swain describes that rail assemblies are biased toward a shaft 16 by springs (*e.g.*, 100 and 102), and the position of these rail assemblies relative to shaft 16 depends upon the location of corresponding cam follower 86 relative to cam 87 (Swain: col. 5, lines 4-9). This relative position is controlled by the position of button 22 relative to the free end of tube 14 such that when button 22 is depressed, cam follower 86 is at its closest position to the axis of

shaft 16 and the free ends of rails 42 and 44 are closest to the outer surface of the tube 14 to facilitate loading of substrate 88 onto the mandrel 10 (Swain: col. 5, lines 9-15; and Fig. 1).

Conversely, after loading hollow cylindrical substrate 88 onto mandrel 10, button 22 is rotated to cause head 26 to ride out of notch 24 (*i.e.*, button 22 is "unlocked"), allowing spring 90 to push shaft 16 toward the free end of mandrel 10, thus causing cam follower 86 to ride up onto the inclined surface of cam 87 (Swain: col. 8, lines 27-32). This movement of cam follower 86 drives the free end of rails 42 and 44 away from the outer surface of tube 14 and toward the interior surface of cylindrical substrate 88, thereby engaging and supporting the interior of cylindrical substrate 88 (Swain: col. 8, lines 32-40).

This engaging and disengaging, in Swain, of the wheels carried by rails 42 and 44 by operating button 22 does not disclose or suggest the step of "releasing said rolls from being held on said roll retainer shaft", as recited in claim 1. Indeed, while it may facilitate the loading and unloading of substrate 88, Swain describes that wheels serve to support the interior of substrate 88 and not to fix said substrate 88 to said roll retainer shaft.

Furthermore, in Swain, the elongated substrate 88 is supported by the tube 14 only through the friction exerted by the wheels 52, 54, 56, 58, 60, 62, 64, 66, etc. on the interior surface of the substrate 88. Swain does not disclose or suggest any supporting means that supports the substrate 88 during loading of the substrate 88. For example, in Fig. 1 of Swain, which illustrates the loading of a hollow substrate 88, the aforementioned wheels (*e.g.*, wheel 66) may not contact the interior surface of the substrate 88 in order to facilitate loading of the substrate 88 (Swain: col. 5, lines 11-15; col. 7, lines 38-41; and Fig. 1).

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

Further still, Swain does not disclose or suggest any fixing means that fixes the substrate 88 to the tube 14 after the substrate 88 is loaded. The mere engagement of the aforementioned wheels with an interior surface of the substrate 88 does not fix the substrate 88 to the tube 14. Consequently, the roll recited in claim 1 could be easily released from the tube 14 of Swain.

Yet further still, because the substrate 88 is not supported during loading in Swain, the roll recited in claim 1 cannot be moved smoothly onto the tube 14 of Swain. Furthermore, the weight of the roll recited in claim 1 could cause the long tube 14 of Swain to bend.

For at least the above exemplary reasons, claim 1 is not anticipated by Swain.

Claim 4

Applicants amend claim 4 to incorporate the subject matter of claim 6, and cancel claim 6 to avoid redundancy. As amended, claim 4 recites a releasing means "having a pressing member disposed at an axial center of said roll loading shaft for pressing an axial center of said roll retainer shaft to release said rolls from being held on said roll retainer shaft". Claim 4 is not anticipated by Swain based on a rationale analogous to the rationale set forth above for claim 1.

III. Claim Rejections -- 35 U.S.C. § 103(a)

Claims 3 and 7

Claims 3 and 7 stand rejected under § 103(a) as allegedly being unpatentable over Swain, as applied to claims 1 and 4, and further in view of Van Breen.

Claims 3 and 7 are patentable over a reasonable combination of Swain and Van Breen, at least by virtue of their dependency from claims 1 and 4, respectively, because Van Breen does not make up for the aforementioned deficiencies of Swain.

Furthermore, in Van Breen, the magnetic discs 18 are loaded by chains 30, 32 that move in the same direction as the discs 18 (Van Breen: Fig. 1). The driving elements, including the motor 54, that move the discs 18 are provided on the right magnetic disc stacking device 10, which stacks the discs 18 (*Id.*).

Conversely, in Applicants' invention (*see, e.g.,* claims 3 and 7), rolls are moved to a roll loading shaft by rotating a roll retainer shaft according to the rotation of the roll loading shaft. Therefore, the roll holding mechanism having the roll retainer shaft does not need a driving mechanism such as a motor, which is an exemplary advantage over Van Breen.

For at least these exemplary reasons, claims 3 and 7 are not rendered obvious by Swain and Van Breen (either alone or in combination).

Claims 5 and 10

Claims 5 and 10 stand rejected under § 103(a) as allegedly being unpatentable over Swain, as applied to claims 1 and 4, and further in view of Rauh.

Claims 5 and 10 are patentable over a reasonable combination of Swain and Rauh, at least by virtue of their dependency from claim 4 because Rauh does not make up for the aforementioned deficiencies of Swain.

Furthermore, in Rauh, since the outer surfaces of the rolls 1 are supported by the belt conveyor 2, the outer surfaces of the rolls 1 may be easily damaged. Additionally, unless the

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

outer diameter of the rolls 1 on the belt conveyor 2 are the same, the axis of the rolls differ such that the same shaft cannot be used to support the rolls.

Conversely, in Applicants' invention (*see, e.g.*, claims 5 and 10), each of the rolls is supported by the shaft positioned at the center of the rolls. Therefore, the outer surfaces of the rolls are not used for support, and thus are less likely to be damaged. Furthermore, the same apparatus can be used for a plurality of rolls, even if the rolls have various outer diameters.

For at least these exemplary reasons, claims 5 and 10 are not rendered obvious by Swain and Rauh (either alone or in combination).

Claims 8 and 9

Claims 8 and 9 stand rejected under § 103(a) as allegedly being unpatentable over Swain and Van Breen, as applied to claim 7, and further in view of Schlitz.

Claims 8 and 9 are patentable over a reasonable combination, if any, of Swain, Van Breen and Schlitz at least by virtue of their dependency.

In addition to the deficiencies of Swain and Van Breen noted above, in Schlitz, the power drive shank 20 is constantly connected to the tool holder 28 by the Oldham's coupling mechanism, and cannot be arbitrarily released.

Conversely, in Applicants' invention, the elements in the Oldham's coupling mechanism can be freely engaged and released as necessary. Furthermore, since the slide element of claim 9 is supported by a sleeve, the slide element does not fall off even when the coupling mechanism is released.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

For at least these exemplary reasons, claims 8 and 9 are not rendered obvious by Swain, Van Breen and Schlitz (either alone or in combination).

Claims 11-14

Claims 11-14 stand rejected under § 103(a) as allegedly being unpatentable over Read, in view of Swain.

The Examiner acknowledges that Read fails to teach or suggest "a moving mechanism for moving said roll along said retainer shaft" (*see* Office Action, page 6). The Examiner alleges that Swain makes up for this deficiency of Read by teaching a transferring means for moving one of said rolls along said roll retaining shaft (Read: col. 9, lines 33-40).

Swain describes substrates 88 are loaded onto mandrel 10 either manually or by some other suitable technique such as a programmed robot arm (Swain: col. 9, lines 33-41). These approaches to placing a substrate 88 onto mandrel 10 do not teach or suggest "a moving mechanism [included in a roll supply carriage] for moving said roll along said roll retainer shaft".

Furthermore, the Examiner fails to provide a reasonable suggestion or motivation for combining the teachings of Read and Swain. Read differs fundamentally from the system for supporting hollow cylinders described in Swain. For example, Read describes a coil handling device which orientates coils on a reel between two positions, *e.g.*, vertical axis and horizontal axis (Read: Abstract). In Read, the coil handling device relates to the lifting and maneuvering of a roll of material (Read: col. 1, lines 6-11).

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

The Examiner alleges that it would have been obvious to one of ordinary skill in the art, at the time of the invention, to provide the roll transferring means taught by Swain to the device taught by Read in order to move a roll from the device without manual intervention. Applicants respectfully disagree.

Unlike Swain, Read does not involve the transferring of a hollow cylindrical substrate from a loading mandrel 110 to a receiving mandrel 10. Instead, Read involves inserting a jaw mechanism 12 into barrel 17 of reel 14 (Read: Fig. 1). In Read, when yoke handle 67 is pivoted, the flanges of the reel 14 are engaged and held (Read: col. 3, lines 42-56). Thus, in Read, it is the jaw mechanism 12 that moves (and not reel 14). Therefore, the Examiner's purported motivation for combining the teachings of Swain with Read, *i.e.*, "in order to move a roll from the device without manual intervention", appears flawed since Swain does not involve the non-manual insertion of a jaw mechanism into a reel and pivoting of a yoke handle 67.

For at least these exemplary reasons, claims 11-14 are not rendered obvious by Read and Swain (either alone or in combination).

Claim 15

Claim 15 stands rejected under § 103(a) as allegedly being unpatentable over Read and Swain, as applied to claim 11, and further in view of Van Breen.

In addition to the deficiencies of Read, Swain and Van Breen identified above, claim 15 is patentable over a reasonable combination, if any, of Read, Swain and Van Breen at least by virtue of its dependency.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

Claim 16

In addition to the deficiencies of Read, Swain and Van Breen identified above, claim 16 is patentable over a reasonable combination, if any, of Read, Swain, Van Breen and Sano at least by virtue of its dependency.

IV. Formal Matters

Priority

The Examiner acknowledges Applicants' claim for foreign priority, including receipt of the priority documents.

Cited References

The Examiner provides a signed and initialed copy of the Form PTO-1449 submitted with Applicants' IDS filed on November 30, 2001, thereby indicating consideration of the two Japanese references cited therein.

Drawings

The Examiner indicates acceptance of the drawings filed with the application on November 30, 2001.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Billy Carter Raulerson
Registration No. 52,156

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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CUSTOMER NUMBER

Date: October 16, 2003